VICTORIAN CENTRE FOR BIOSTATISTICS ViCBiostat

Victorian Centre for Biostatistics

SEMINAR

Thursday 23rd August 2018
9.30am to 10.30am

Royal Children's Hospital, Ella Latham Theatre
Ground floor, 50 Flemington Rd, Melbourne

Evaluation of dynamic pharmacotherapy regimens in type 2 diabetes patients using EHR data: results of various methodological considerations

Dr Romain Neugebauer
Kaiser Permanente, California, USA

Electronic Health Record (EHR) data are used increasingly for comparative effectiveness research (CER). This growing source of rich clinical information provides a cost and time-effective opportunity to conduct retrospective cohort studies with large, representative samples of the diverse patient populations found in real-world clinical settings. Modern causal inference methods such as marginal structural modelling can be applied in EHR-based studies to rigorously address common sources of estimation bias such as confounding or informative loss to follow-up. Inferences from these methods are appealing in practice because they can be assimilated to gold standards from hypothetical randomized experiments under assumptions that are made explicit to the analyst. However, unlike data that are primarily assembled for research purposes based on well-controlled data collection protocols, EHR data are updated in continuous time, and the timing and content of these data are highly variable across patients. The resulting granularity and variability lead to both new analytic challenges and provide new opportunities to increase the relevance and scope of CER evidence generated with EHR data.

In this seminar, I will demonstrate the application of analytic approaches developed to address some of these methodological gaps, specifically in a cohort study of type 2 diabetes adults from 7 regions of the United States. Illustrations will be based on results from the estimation of the causal effects of four personalized glucose-lowering therapy intensification strategies on the onset or progression of albuminuria using high-dimensional EHR data.

Romain Neugebauer is a Biostatistician and Research Scientist at the Kaiser Permanente Northern California Division of Research in Oakland, California, USA. His research focuses on the development, application, and dissemination of causal and statistical methodologies to evaluate the effects of treatment regimens in observational studies with complex longitudinal data.

ViCBiostat *is a Centre of Research Excellence in biostatistics initially funded by Australia's National Health & Medical Research Council (NHMRC). The Centre is a collaboration between biostatistical researchers at the Murdoch Children's Research Institute, the Department of Epidemiology & Preventive Medicine at Monash University, and the Centre for Epidemiology & Biostatistics (CEB) at The University of Melbourne.* ***www.vicbiostat.org.au***

murdoch children's research institute

MONASH University

THE UNIVERSITY OF MELBOURNE